

CLAIM AMENDMENTS

A complete listing of the claims of the present application, including those being cancelled herein, together with the required claim status indicators, is set forth as follows:

Claims 1-18 (cancelled).

Claim 19 (currently amended) A method for fabricating a magnetoresistive sensor having a recessed sensing element and a flux guide formed by an extension of a free layer of the sensing element, the method comprising the steps of:

forming a multi-layer wafer which includes layers that will serve as said sensing element and said flux guide;

said multi-layer wafer forming step including forming a wafer having an antiferromagnetic layer, a pinned layer disposed on said antiferromagnetic layer, a barrier layer disposed on said pinned layer, a partial free sub-layer disposed on said barrier layer at a thickness that is less than a final thickness of a completed free layer to be formed on said barrier layer, and a cap layer; and

defining a track width for said sensing element and said flux guide in a single photo processing operation.

Claim 20 (currently amended) ~~The~~A method in accordance with Claim 19 wherein said sensing element is constructed as one of a magnetic tunnel junction device or a current-perpendicular-to-plane spin valve device.

Claim 21 (cancelled).

Claim 22 (currently amended) ~~The~~A method in accordance with Claim ~~19~~²¹ wherein said photo processing operation includes applying a photoresist mask on said wafer to define a self-

aligned sensing element and flux guide having active regions disposed between a pair of common track width boundaries that define sensing element and flux guide track widths which are substantially equal to each other.

Claim 23 (currently amended) TheA method in accordance with Claim 22 further including removing said cap layer, said free sub-layer, said barrier layer and said pinned layer from areas thereof that are outside of said active regions to expose a corresponding area of said antiferromagnetic layer.

Claim 24 (currently amended) TheA method in accordance with Claim ~~23~~ further including forming an insulating layer over said exposed area of said antiferromagnetic layer, said insulating layer being of sufficient thickness to cover exposed portions of said pinned layer and said barrier layer along said track width boundaries.

Claim 25 (currently amended) TheA method in accordance with Claim 24 further including forming an exchange bias layer over said insulating layer and removing said photoresist mask and said cap layer to expose said free sub-layer within said track width boundaries while leaving said exchange bias layer intact outside of said track width boundaries.

Claim 26 (currently amended) TheA method in accordance with Claim 25 further including applying additional free layer material over said wafer, including said free sub-layer and said exchange bias layer, whereby said additional free layer material completes said sensing element and said flux guide active regions within said track width boundaries and provides an exchanged biased free layer outside of said track width boundaries that longitudinally biases said active regions to a selected magnetic orientation in the absence of an external magnetic field..

Claims 27-28 (cancelled).